

## WHAT IS CLAIMED IS:

- 1 1. A method for remotely communicating with a Broadband modem, comprising:  
2 detecting a communication error on a Broadband modem;  
3 establishing a Plain Old Telephone System (POTS) connection  
4 between said Broadband modem and a remote server;  
5 communicating with said remote server via said POTS connection  
6 using Dual-Tone Multi-Frequency (DTMF) tones.
- 1 2. The method of claim 1, wherein said detecting comprises detecting that a  
2 Broadband circuit cannot be provisioned over a twisted pair connected to said  
3 Broadband modem.
- 1 3. The method of claim 1, wherein said communicating comprises:  
2 transmitting information associated with said communication error to  
3 said remote server via said POTS connection using DTMF tones; and  
4 receiving a diagnosis from said remote server via said POTS  
5 connection in DTMF tones.
- 1 4. The method of claim 3, further comprising transmitting said diagnosis to a  
2 client computer.
- 1 5. The method of claim 1, wherein said transmitting comprises communicating  
2 diagnosis information in the form of a Web-page from a Web-server on the  
3 Broadband modem to a client computer's Web-browser.
- 1 6. The method of claim 1, wherein said detecting step comprises detecting that a  
2 Digital Subscriber Line (DSL) tone does not exist on a twisted pair connected  
3 to said Broadband modem.

1 7. The method of claim 1, wherein said detecting step comprises determining that  
2 said Broadband modem cannot synchronize with a Digital Subscriber Line  
3 Access Multiplexor (DSLAM).

1 8. The method of claim 1, wherein said detecting step comprises determining that  
2 a Permanent Virtual Circuit (PVC) cannot be established from said Broadband  
3 modem.

1 9. The method of claim 1, further comprising, before said detecting step, the step  
2 of detecting POTS service.

1 10. The method of claim 1, further comprising acquiring an identifier from a user  
2 of said Broadband modem.

1 11. The method of claim 1, further comprising, before said establishing step, the  
2 step of ascertaining that new information associated with said communication  
3 error has not yet been sent to said remote server.

1 12. The method of claim 1, further comprising, before said establishing step, the  
2 step of ascertaining that a Broadband circuit has not been provisioned within a  
3 predetermined time.

1 13. The method of claim 1, wherein said communicating comprises sending  
2 information associated with communication error to said diagnostic server,  
3 where said information is selected from a group consisting of: a serial number  
4 of said Broadband modem, a hardware version of said Broadband modem, a  
5 software version of said Broadband modem, an identifier acquired from a user  
6 of said Broadband modem, Digital Subscriber Line (DSL) tone information,  
7 Digital Subscriber Line Access Multiplexor (DSLAM) connectivity  
8 information, Virtual Circuit connectivity information, Internet Protocol  
9 connectivity information, and any combination of the aforementioned.

- 10 14. The method of claim 1, wherein said communicating comprises:  
11 transmitting a request for configuration details to said remote server  
12 via said POTS connection using DTMF tones;  
13 receiving said configuration details from said remote server via said  
14 POTS connection in DTMF tones; and  
15 configuring said Broadband modem using said configuration details.
- 1 15. A system for remotely diagnosing a Broadband modem, comprising:  
2 a telephone company central office coupled to both a data network and  
3 a Public Switched Telephone Network (PSTN);  
4 a Broadband modem coupled to said telephone company central office  
5 via a telephone line, where said Broadband modem is configured to  
6 communicate data and Dual-Tone Multi-Frequency (DTMF) tones over said  
7 telephone line; and  
8 a remote server coupled to said PSTN, where said remote server is  
9 configured to communicate with said Broadband modem using DTMF tones.
- 1 16. The system of claim 15, wherein said telephone company central office  
2 comprises a Digital Subscriber Line Access Multiplexor (DSLAM) coupled to  
3 the data network
- 1 17. The system of claim 16, wherein said telephone company central office further  
2 comprises:  
3 another Broadband modem coupled between the DSLAM and the  
4 Broadband modem; and  
5 a Plain Old Telephone System (POTS) switch coupled to the PSTN.
- 1 18. The system of claim 15, wherein said Broadband modem comprises the  
2 following components:  
3 a Central Processing Unit (CPU);  
4 communications circuitry;

5 a DTMF transceiver;  
6 a memory, comprising:  
7 DTMF protocol procedures  
8 remote procedures; and  
9 Digital Subscriber Line (DSL) service configuration  
10 procedures; and  
11 a bus connecting the aforesaid components.

1 19. The system of claim 15, wherein said remote procedures comprise:  
2 Plain Old Telephone System (POTS) dial-tone detection procedures;  
3 and  
4 Digital Subscriber Line (DSL) tone detection procedures.

1 20. The system of claim 18, wherein said DSL service configuration procedures  
2 comprise:  
3 Digital Subscriber Line Access Multiplexor (DSLAM) synchronization  
4 procedures;  
5 Permanent Virtual Circuit (PVC) connectivity procedures; and  
6 Internet Protocol (IP) connectivity procedures.

1 21. The system of claim 15, wherein said Broadband modem comprises a Web-  
2 server and Web-pages.

1 22. The system of claim 15, wherein said remote server comprises:  
2 a Central Processing Unit (CPU);  
3 communications circuitry;  
4 a DTMF transceiver;  
5 a memory, comprising:  
6 DTMF protocol procedures; and  
7 remote procedures; and  
a bus connecting the aforesaid components.

- 1 23. The system of claim 15, wherein said remote procedures comprise Automatic  
2 Number Identification (ANI) detection procedures.
- 1 24. The system of claim 15, wherein said memory further comprises a user  
2 database containing previous remote session data.
- 1 25. The system of claim 15, wherein said memory further comprises a user details.
- 1 26. A Broadband modem comprising the following components:  
2 a Central Processing Unit (CPU);  
3 communications circuitry;  
4 a DTMF transceiver;  
5 a memory, comprising:  
6 Broadband communication procedures  
7 DTMF transceiver procedures; and  
8 a DTMF protocol; and  
9 a bus connecting the aforesaid components.
- 1 27. The system of claim 26, wherein said memory further comprises:  
2 diagnostic procedures; and  
3 Digital Subscriber Line (DSL) service configuration procedures.
- 1 28. The system of claim 27, wherein said diagnostic procedures comprise Plain  
2 Old Telephone System (POTS) dial-tone detection procedures.
- 1 29. The system of claim 27, wherein said diagnostic procedures comprise DSL-  
2 signal detection procedures.
- 1 30. The system of claim 27, wherein said configuration procedures comprise:  
2 Digital Subscriber Line Access Multiplexor (DSLAM) synchronization  
3 procedures;

4                   Permanent Virtual Circuit (PVC) connectivity procedures; and  
5                   Internet Protocol (IP) connectivity procedures.

1    31.    The system of claim 26, wherein said Broadband modem comprises a Web-  
2           server and Web-pages.

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